



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Huiping LI et al.

Appl. No. 09/935,610

Confirmation No. 8980

Filed: August 24, 2001

For: EXTRACTION OF TEXTUAL
AND GRAPHIC OVERLAYS
FROM VIDEO

Art Unit: 2672

Examiner: Thu Thao Havan

Atty. Docket No. 37112-173148

Customer No.

26694

PATENT TRADEMARK OFFICE

Response to Office Action Under 37 C.F.R. §§ 1.111 and 1.121

Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

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AUG 11 2004

Technology Center 2600

Sir:

In reply to the non-final Office Action (Office Action) dated **June 14, 2004**, (PTO Prosecution File Wrapper Paper No. 7), Applicants submit the following response.

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are needed to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a). Any fees required therefor, and any other fee deficiencies, are hereby authorized to be charged, or any overpayments credited, to our Deposit Account No. 22-0261.

Request for Reconsideration

Applicants thank the Examiner for her careful consideration of this Application.

Reconsideration of this Application is respectfully requested in view of the remarks below.

Claims 1-38 remain pending in this application, with Claims 1, 29, 31, and 35 being independent claims.

In the Office Action, Claims 1-38 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Nishimura et al. (U.S. Patent No. 5,631,697). These rejections are respectfully traversed for the following reasons.

The invention as claimed in Claim 1 is directed to a method of extracting overlays from video. These overlays are pre-existing in the video sequence. The method includes steps of detecting at least one potential overlay and verifying that the at least one potential overlay is an actual overlay.

In contrast, Nishimura et al. is directed to automatic target tracking for a video camera. Therefore, it is directed to altogether different subject matter and can not anticipate the claimed invention. This will be further clarified in the remarks to follow.

The Office Action at Page 2 asserts that col. 5, line 55 to col. 6, line 55 and Fig. 3 disclose the extraction of a pre-existing overlay from a video sequence by detecting at least one potential overlay in the video sequence. However, the cited sections (and figure) are directed to identifying a target object in video. That is, **Nishimura et al. is directed to identifying a portion of the video, not something (an overlay) superimposed on the video.**

In further detail, Nishimura et al. (in the cited passage) uses luminance and chrominance data of the video signal to identify a region of the video containing an object being tracked. The object is part of the video. As discussed in cols. 1-2, the objective of Nishimura et al. is to cause a video camera to track the object, in order to keep it in the video (i.e., so that the camera continues to track it). This is quite different from extracting an overlay, which is **not** part of the video itself, but which has been added to the video.

The Office Action at Page 2 further relies on col. 6, line 56 to col. 7, line 49 to disclose verifying that at least one potential overlay is an actual overlay. In this passage, an "extracted candidate region" is compared to the data of a pre-stored object region (col. 6, lines 56-59) to determine if the extracted candidate region actually contains the video object being tracked. As discussed at col. 7, lines 42-49, the pre-stored object region is stored in memory at the beginning of the tracking operation. That is, **the system of Nishimura et al. does not verify that an object is an overlay**; rather, it verifies that an object is a previously identified object of interest (i.e., the object to be tracked).

As a result, it is respectfully submitted that Nishimura et al. can not and does not anticipate Claim 1 or any of its dependent claims.

Continuing to follow the Office Action, at Page 3, it is asserted that Nishimura et al. teaches limitations found in Claims 2, 3, and 16, namely post-processing at least one actual overlay to remove extraneous pixels and computing a variance for each pixel of the at least one actual overlay; and comparing the variance with a threshold to determine whether or not the pixel

should be removed as an extraneous pixel. It is asserted that these limitations are found in col. 13, lines 33-63. However, a review of this passage reveals that these limitations are not taught here.

In particular, col. 13, lines 33-63 are directed to a target tracking control procedure. Nowhere does the passage teach, or even mention, the removal of extraneous pixels, or of any pixels whatsoever. Furthermore, there is no discussion of computing or working with any type of variance (noting that "variance" is a specific statistical term and is *not* the same as a "difference").

Hence, it is respectfully submitted that Nishimura et al. fails to anticipate Claims 2, 3, and 16.

The Office Action next asserts, in connection with Claims 4 and 25, that Nishimura et al., at col. 14, lines 1-65, teaches the use of wavelet decomposition, extraction of features based on the wavelet decomposition, and performing neural network processing on the extracted features. Applicants are unable to find any mention of either wavelet decomposition or neural network processing anywhere in the cited passage, or anywhere else in Nishimura et al. Consequently, Applicants respectfully submit that Claims 4 and 25 are allowable over Nishimura et al.

Also at Page 3, the Office Action further asserts that Figs. 1 and 12a of Nishimura et al. disclose the use of three-layer back-propagation neural network processing, as in Claims 5 and 21. Applicants do not see such a teaching in Figs. 1 and/or 12a, or even in their accompanying discussions (at col. 4, line 28 to col. 5, line 55 and col. 11, line 39 to col. 12, line 16). Hence,

Applicants respectfully submit that Nishimura et al. does not disclose this feature, and that Claims 5 and 21 are thus allowable over Nishimura et al.

Next, the Office Action asserts that the temporal and/or spatial verification discussed in Claims 6, 15, 30, and 32-33 are taught by Nishimura et al. at col. 2, lines 23-59. Applicants have found no mention of any disclosure, or even a hint, of such verification procedures in Nishimura et al., either in the cited passage or anywhere else. Consequently, Applicants respectfully submit that Claims 6, 15, 30, 32, and 33 are allowable over the cited prior art.

At Page 4, the Office Action relies on Nishimura et al., Figs. 13-16, to disclose the limitations of Claims 7, 17-20, 22-24, 31, 34, and 36-38. In particular, the Office Action asserts that the cited figures show translating a potential overlay over a search range, computing a means square error in a next video frame for each translated version, determining a minimum of the computed mean square errors, and comparing the determined minimum mean square error to a threshold. However, upon review of Figs. 13-16 and their accompanying discussion at col. 12, line 23 to col. 14, line 32, Applicants are unable to locate any such disclosure or teaching.

In particular, Figs. 13-16 are directed to various procedures for target tracking and camera control. In these procedures, differences are determined between coordinates of an object of interest and the center of the video screen (see, e.g., step 1302). These differences are then used to control the camera (see, e.g., col. 12, lines 44-64). Nowhere are mean square errors determined, nowhere is a minimum mean square error determined, and nowhere is a minimum mean square error compared to a threshold. Consequently, Applicants respectfully submit that

Nishimura et al. fails to teach or disclose this subject matter and that, therefore, Claims 7, 17-20, 22-24, 31, 34, and 36-38 are allowable over Nishimura et al.

In connection with Claims 8-14, the Office Action asserts that Nishimura et al., at col. 13, line 20 to col. 14, line 19, discloses selecting a particular pixel of a potential overlay and recording its coordinates and recording the translated coordinates of the particular pixel corresponding to the determined minimum mean square error. Applicants are unable to locate any such disclosure.

The cited passage relates to taking the coordinates of the centroid of a target object and determining differences from the coordinates of the center of the screen (see col. 13, lines 35-40). However, the centroid of an object may or may not correspond to a particular pixel. Also, as discussed above, this deals with tracking a target object to be captured in a video, not with extracting an overlay from a video. Finally, also as discussed above, there is no computation of any mean square error, much less a determination of a minimum mean square error. Hence, it is respectfully submitted that the cited passages fail to disclose the subject matter claimed in Claims 8-14, as asserted in the Office Action.

Finally, the Office Action asserts that the limitations of Claims 26-29, 31, and 35 correspond to those of Claims 1-6, so that the previously cited passages of Nishimura et al. apply to these claims, as well. For the reasons cited above, therefore, it is respectfully submitted that Claims 26-29, 31, and 35 are also allowable over Nishimura et al.

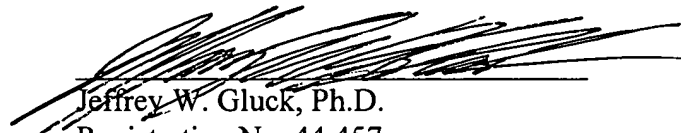
Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants, therefore, respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

Date: August 9, 2004



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